

## Microbiology of chili bo, a popular Malaysian food ingredient

### ABSTRACT

The predominant microbial flora of a specific Malaysian food ingredient, chili bo (containing 9% ground dried chilies, 0.6% acetic acid, and 5 to 10% cornstarch, wt/vol) stored for up to 25 days at 28°C without added benzoic acid (product A) and with 7,000 ppm of added benzoic acid (product B) was examined. Aerobic plate counts for both products were initially 6.2 to 6.5 log CFU/g increasing to 8.5 log CFU/g for product A after 4 days. Aerobic plate counts for product B did not increase during storage. Lactic acid bacteria (LAB) counts increased in product A from 4.8 log CFU/g to 8.3 log CFU/g and in product B from 2.1 log CFU/g to 7.6 log CFU/g after 17 days. Growth of yeast occurred in product A. Both products exhibited spoilage after 1 to 2 days of storage at 28°C indicated as accumulation of gas bubbles. In addition surface growth of molds (product A) or whitish discoloration (product B) was observed later in storage. For product A the predominant isolates were LAB, *Bacillus pumilus*, *Bacillus subtilis*, *Staphylococcus* spp., and yeasts. *B. pumilus* and *B. subtilis* predominated initially whereas the other types of microorganisms predominated after 25 days of storage. *B. pumilus* and *B. subtilis* were also predominant in product B, but after 25 days of storage a homofermentative LAB was found in higher numbers (7.6 log CFU/g). Isolates of heterofermentative LAB but not homofermentative LAB or *B. pumilus* or *B. subtilis* were able to produce gas during growth in chili bo sterilized by autoclaving at 121°C for 15 min. Growth of heterofermentative LAB, *B. pumilus*, and *B. subtilis* was inhibited by acidifying agents, a nisin-containing supernatant, or incubation at low temperatures.

**Keyword:** *Bacillus*; Benzoic acid; Chili bo; Inhibition; Lactic acid bacteria; Nisin; Spoilage